

APPENDIX B

TRAINING GUIDANCE

1. Background.

a. One of the key USACE professional development policies is that participation in professional societies, registration, and other evidence of continued self development are marks of excellence and indicators that an individual has made a personal effort to keep abreast of advances and changes in his/her profession. Continual support and leadership are required to encourage USACE personnel to seek continuing professional development where it is available.

b. The practice of landscape architecture is of significant social and environmental value in the planning and design of outdoor spaces in all contexts of human endeavor. Competence in practice is achieved by technical professional education, training and working experience, and carries with it the responsibility to act on behalf of the public health, safety and welfare in each project assignment.

c. The application of special skills, knowledge and judgement by landscape architects protects the public health, safety and welfare through a range of professional activities which are not only traditionally performed by landscape architects but which are also gained through specific landscape architectural training. Internship is basic to independent and well founded professional decisions. It should be encouraged within the framework of professional education toward enhancing entry level objectives.

2. Training Guidance. To satisfy the Intern-landscape architect development program training guidance, career program individuals should complete specific periods of training in the three major functional areas as provided by AR 690-950, i.e., planning, engineering, construction, programs, project management, and operations. In addition, plans should include a facilities engineering orientation of at least four weeks duration. Opportunities for further development should also be afforded to higher level landscape architects who have not gone through the intern program.

Category A - Civil Works Planning

The following training areas are recommended:

a. **Plan Formulation.** Landscape architects may be responsible for plan formulation for civil works projects and serve as project/study managers for such studies. As such, they serve as the manager or lead person on an interdisciplinary planning team comprised of various disciplines including but not limited to various engineering disciplines such as hydraulic and hydrology engineers, and foundation engineers. Also included are economists, real estate specialists, environmental specialists, recreation planners, cultural resource specialists/archaeologists, etc. The study team is responsible for producing reconnaissance and feasibility studies as authorized by Congress and subsequently as the basis for entering into local cooperation agreements to implement the plans. Possible career program individual activities include but are not limited to:

(1) Participating with a study team in the formulation of a plan of study or Initial Project Management Plan (IPMP) to identify needs and a means for obtaining study/project costs, schedules, tasks and responsibilities.

(2) Participating in coordination with in-house, interagency, the public and congressional sources to ensure that interested parties input the process.

(3) Assisting in developing and evaluating alternative plans to ensure that the National Economic Development Plan (NEDP) is identified and that the most desirable plan from an economic, environmental and engineering point of view is recommended with justification for deviation from the NEDP.

(4) Serving as the focal point in coordination with potential non-Federal local sponsors, other agencies, and the public and acts as liaison with them.

(5) Helping negotiate the local cost sharing agreement with a non-Federal local sponsor prior

to the initiation of the feasibility phase.

(6) Assisting in coordinating study input from various technical elements and preparing the study report assuring that study objectives are met and that the recommended plan complies with ever-changing administrative policies and agency regulations and meets the objectives of the local sponsor.

(7) Helping develop the required budgetary documentation to ensure continuous seamless funding of study and recommended projects and assures that the local sponsor has the financial capability to participate.

(8) Participating in the review and approval meetings with cost sharing or other partner representatives, Division, MACOM, and ASA representatives.

(9) Assisting in the coordination of and participates in public meetings and workshops on assigned projects.

(10) Assisting the team leader in preparation of frequent upward reporting and in exercising routine administrative and task controls.

(11) Monitoring and reporting study fund obligations and expenditures for all projects assigned to foster timely and on-budget team products and the attainment of office budgeting targets.

b. Master Planning. The master plan is the basic document guiding Corps of Engineers responsibilities pursuant to Federal laws to preserve, conserve, restore, maintain, manage and develop the project lands, waters, and associated resources. The master plan may cover a single project or several, depending on what is the best management of the resources involved. The master plan covers all resources including, but not limited to fish and wildlife, vegetation, cultural, aesthetic, recreational, mineral, commercial, and outgranted lands, easements, and water. Possible career program individual activities include, but are not limited to:

(1) Participating with a master plan study team in the formulation of a plan of study to identify information needs and means for obtaining study costs, schedules, tasks, and responsibilities.

(2) Assisting in evaluating existing master plans to assess the extent to which the document serves its intended purpose, and to determine if it is responsive to current and foreseeable regional needs, public interests and desires, and is actually being used and followed.

(3) Participating in coordination with in-house, interagency, public, and congressional sources to ensure that interested parties participate in the process.

(4) Checking master plan scopes of work to see that the master planning process will be implemented in a cost effective manner in its preparation and maintenance.

(5) Monitoring and reporting study fund obligations and expenditures for all projects assigned to foster timely and on-budget team products and the attainment of office budgeting targets.

c. Environmental Quality Protection Planning. Environmental quality considerations have been integrated into Army planning and decision making. The landscape architect may be asked to conduct or participate in environmental studies which identify, delineate, evaluate and assess environmental resources which will be considered along with economic and engineering factors. The overall intent of this planning is to prevent damage or impact on the nation's biological, cultural (i.e., archeological and historic), and aesthetic resources. The landscape architect may be involved in studies to develop preservation, conservation, protection, rehabilitation, restoration, or enhancement plans for individual resources. Possible career program individual activities include, but are not limited to:

(1) Conducting or participating in studies, such as preparation of NEPA documents, to identify resources and identify and evaluate the nature of the potential impacts of development or action plans.

(2) Participating in discussions leading to recommendations for alternate approaches to fulfill mission requirements.

(3) Developing or Assisting in the formulation of environmental plans for the preservation,

protection, conservation, rehabilitation, restoration or enhancement of identified resources.

(4) Assisting in documenting pertinent information to be included in master plans for long-term records.

Category B - Engineering

The following training areas are recommended.

a. Army Real Property Master Planning. Landscape architects may be responsible for the master planning function on military installations. Real Property Master planning is a process that identifies long-term priorities and goals of the installation and translates those priorities and goals into land use, facilities, and related infrastructure objectives and policies, as well as natural resource protection and efficient use of all resources. The plan is the primary mechanism to relate the installation mission to plans for facilities, programs, projects and policies required within installation boundaries to support the military community. The plan is also a product that portrays those long-term priorities, goals objectives and policies. Documentation may include, but is not limited to reports, maps, plans, and environmental impact studies, or assessments. Possible career program individual activities include, but are not limited to:

(1) Participating in conferences with MACOM, installation, users to determine what types of planning services are required by the installation. Assisting in preparing minutes and or reports, if needed.

(2) Assisting in the preparation of a scope of work and cost estimates for A/E services to reflect the stated needs of the installation.

(3) Assisting in selection board procedures and in contract negotiation meetings with the selected A/E master planning contractor.

(4) Attending installation planning board meetings, Assisting in presentation of planning components. and preparing minutes and reports as needed.

(5) Assisting in the preparation of Real Property Master Plans as a member of an "in-house team".

b. Technical Engineering Activities. The landscape architect participates in providing technical engineering criteria, guidance and instructions. Approves principal engineering features of Military and Civil Works projects and programs as required. Responsibilities include development of design criteria for site design on military installations including child development centers and security engineering, and for modes of access and circulation to and about outdoor recreation areas and facilities such as park access and circulation roads, parking areas, boat ramps, walks, steps, and trails in Civil Works projects. Responsibilities also include local flood protection programs from treatment of channel walls to aesthetics of bridge abutments and walls. Possible career program individual activities include, but are not limited to:

(1) Participating in the review, analysis and revision of technical engineering criteria, guidance and instructions. Prepare recommendations to modify these criteria.

(2) Participating in design teams in the design of outdoor recreational facilities such as roads, parking areas, boat launching ramps, beach developments, flood protection projects and similar facilities. Field stake and check before completion of plans and specifications.

(3) Accompanying the design team in field visits during construction.

(4) Preparing papers/reports evaluating findings during field visits.

(5) Participating in wildlife habitat revegetation and restoration design efforts for environmental mitigation commitments associated with Civil Works projects.

(6) Providing landscape architectural support for buildings, recreational facilities, and family housing associated with Military projects.

c. Programming. Programming is the process of setting forth the user's requirements for a given project in writing. Steps in this process include establishing goals; considering a budget; collecting, organizing and analyzing data; isolating and developing concepts; and determining needs in general. The project will also

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be affected by funding limitations; scheduling limitations; Department of Defense (DoD), DA, and USACE health, welfare and safety criteria; and input from the Major Army Commands (MACOM), the people who will work in the built environments (the users), and cost-sharing or other partners (local sponsors) on Civil Works projects. All of this input at the programming stage is essential in order to maintain an orderly design process. Possible career program individual activities include, but are not limited to:

(1) Participating in conferences with MACOM, installation, user, and cost-sharing or other partner representatives regarding programming, periodic reviews and formal presentations, and assisting in preparing minutes or reports for future reference.

(2) Assisting in presentations at zoning and variance hearings, and at meetings with the MACOM and installation, or cost-sharing and other partners concerning specific projects.

(3) Assisting in the preparation of the summary and evaluation of data and requirements obtained from all sources. The summary is the basis for the final written program.

(4) Assisting installation planners in developing DD Form 1391 for military construction projects.

d. Site Analysis. An important segment of the landscape architects work includes analyzing the physical condition of a site. This analysis includes an inventory of existing on-site and off-site characteristics to determine the opportunities and constraints of the site. The inventory should include, but not be limited to the geology and soils, historic or archaeological features, landforms and floodplains, storm drainage, topography and slope analysis, vegetation and wildlife. Off-site analysis should include, identification of adjacent land uses and facilities, vehicular circulation, physical security, safety clearances, availability and location of utility trunk lines, and visual quality. Findings of the analysis should be recorded on a topographic survey. Possible career program individual activities include, but are not limited to:

(1) Participating in a visual survey of the proposed site to record the off-site and on-site

conditions which may affect the site planning, orientation and access to the proposed project.

(2) Helping identify the functions of adjacent facilities to determine compatibility with the proposed project.

(3) Researching site restrictions such as zoning, easements, utilities, etc.

e. Schematic Design. From the user's approved program, the landscape architect develops alternative solutions in the form of sketch designs to satisfy technical and aesthetic requirements. Preferred schemes are presented until the user and landscape architect can agree, and all other DoD, DA, and USACE criteria are met. Possible career program individual activities include, but are not limited to:

(1) Participating in the development and preparation of preliminary design concepts to determine the spatial relationships that best satisfy the user's program (functional and operational requirements) including project area functional organization, orientation and siting of buildings, circulation and parking systems, spatial definitions, and detail design considerations.

(2) Participating in the development and coordination of program requirements with consultants (other disciplines).

(3) Assisting in the preparation of presentation drawings and models including sketching, perspective and rendering techniques for typical professional presentations including prints, reproductions, photography and multimedia audiovisual communications.

(4) Assisting in the analysis and selection of engineering systems including horizontal and vertical road alignments, storm and sanitary sewers, site utilities and computer applications for preparation of site construction drawings.

(5) Participating in design review and approval meetings with MACOM, installation, user, and cost-sharing or other partner representatives.

(6) Participating in the development of site grading, relief visualization, contour interpretation, landform units, surface drainage, slope

calculations, and earthwork quantity determinations.

(7) Assisting in the development of recreation site design including ecological and cultural consideration, resource characteristics, activity requirements, recreation systems and site design standards, with applications of the design process to recreation site developments, park and special use areas.

(8) Selecting and arranging plant materials for specific uses, including climate control modification, spatial definition, circulation control, soil and water conservation, etc., through planting plans and specifications.

(9) Participating in the application of site planning principles and landscape design methods to housing site design with emphasis on housing requirements and opportunities.

f. Environmental Restoration. DoD has implemented a service wide program to address past occurrences of hazardous waste contamination through the Defense Environmental Restoration Program (DERP). The intent of the program is to "identify and evaluate suspected problems associated with past hazardous waste disposal on DoD facilities, control the mitigation of hazardous contamination from such materials and control hazards to health or welfare that resulted from past operations." A wide spectrum of topics are addressed including hazardous materials, liability, emergency response, cleanup, management programs and restoration planning. The landscape architect may be involved in remedial design necessary to restore an area to a safe and usable condition. Possible career program individual activities include but are not limited to:

(1) Participating in the clean-up analysis and evaluation of a site to determine the best design approach for its restoration such as outdoor recreation to benefit the local community.

(2) Assisting in the design of restoration recommendations for the site including vegetation, natural contouring and drainage schemes that enhance or create a natural setting.

(3) Participating in field monitoring of a contract for site restoration.

g. Cost Analysis. An important responsibility of the landscape architect is to evaluate the probable project construction costs. Accurate estimates are crucial to all parties involved with the project. Estimates influence decisions involving basic design, selection of products and systems, and construction scheduling. Long-term maintenance, as well as the impact of material and systems selection (value engineering), are additional factors which bear on project development. Preliminary cost analysis for a project is normally computed based on historical costs, e.g., the initial DD Form 1391 for military projects, available on the 1391 Processor, or the Legislative Maximum Project Cost Limitation (LMPCL) or Administrative Maximum Project Cost Limitation (AMPCL) for Civil Works projects. Cost estimates provided later during the design process, e.g., the DA Form 3086, available on the 1391 Processor, for military projects or the Project Cost Increase Fact Sheet for Civil Works projects, are determined on the basis of labor and material requirements (quantity surveys) which require a more specialized knowledge of construction costs. Possible career program individual activities include, but are not limited to:

(1) Calculating the costs of a project in accordance with AR 415-17 for the initial DD Form 1391 for a military project or, calculate a LMPCL or AMPCL for a Civil Works project.

(2) Making a simplified quantity take-off of selected materials and prepare comparative cost analyses.

(3) Assisting in the preparation of cost estimates at each stage of a project, i.e., initial DD Form 1391, LMPCL or AMPCL, DA Form 3086, Project Cost Increase Fact Sheet, and final Government estimate.

(4) Reviewing various references and texts utilized in cost estimating, e.g., AR 415-17, TM 5-800-4, and commercial sources (Means and Dodge construction cost data).

(5) Assisting in the preparation of cost analyses for current projects using a variety of indices, e.g., cost per square foot, other unit measurements, etc. Participate in a value engineering study for an ongoing project.

(6) Conducting a survey of current costs of various types of projects.

h. Design Guidelines - Reports/Studies.

The Installation Design Guide (IDG), a document in the long-range component of the master plan, consists of several products. Key among these is the IDG narrative. Design guidelines are developed that are responsive to and enhance the visual character of an installation. The purpose is to provide site design guidelines and standards that define color, materials, style and other aspects of design for visual elements of the installation that have been identified, surveyed and analyzed. These guidelines have a direct bearing on the facility design process, should promote design unity and harmony, and reinforce the visual character of the installation. Thorough knowledge of the guidelines is essential to the satisfactory completion of any project. Possible career program individual activities include, but are not limited to:

(1) Assisting in researching and documenting the criteria contained in a selected installation design guide relevant to one or more specific projects.

(2) Studying procedures necessary to obtain relief or waivers from particular IDG requirements as they relate to a project.

(3) Calculating certain variables (e.g., number and size of parking spaces, sidewalk dimensions, and setbacks) that satisfy various IDG requirements.

(4) Determining a project's allowable land coverage as well as maximum areas in compliance with the IDG or other related criteria.

i. Design Development. Based on the user-approved schematic design, the landscape architect revises and details, for the user's further approval, the character of the entire site plan/design, including the selection of plant material, irrigation and other site development systems (i.e., full concept design level). Possible career program individual activities include, but are not limited to:

(1) Participating in the preparation of concept level site development drawings, irrigation systems, planting plans and structures such as steps and ramps, fountains and pools, trellis and decks, retaining walls, benches, planters, drainage structures, lighting, and paving from

schematic design documents.

(2) Assisting in developing various schedules and outline specifications for plant material, paved surfaces, lighting fixtures, construction time, and construction costs.

(3) Helping coordinate site engineering systems proposed for the project.

(4) Participating in design review and approval meetings with MACOM, installation, user, and cost-sharing or other partner representatives.

j. Contract Documents. The working drawing phase of contract documents preparation constitutes a major activity. These drawings describe, in graphic form, all of the essentials of the work to be done, i.e., the location, size, arrangement, and details of the project. As the successful and timely execution of these documents directly relates to the cost and quality of the project, landscape architects must constantly search for more efficient ways to produce construction documents. Regardless of the method of preparation, it is extremely important that the documents be accurate, consistent, complete, and understandable. This requires thorough quality control including constant review and crosschecking of all documents. In addition, effective coordination of the drawings from other disciplines is essential to avoid conflicts between the various trades during construction. Possible career program individual activities include, but are not limited to:

(1) Working in the preparation of detail site development drawings and planting plans, developing technical skills in drafting accuracy, completeness, and clarity. Both manual and computer-aided drafting and design (CADD) experience are recommended.

(2) Assisting in the coordination of all landscape architectural documents and documents produced by the other disciplines.

(3) Developing a knowledge of professional responsibilities and liabilities arising out of the issuance of construction documents.

(4) Participating in the mechanics of reproducing and assembling the finished construction documents.

(5) Assisting the project team leader (or equivalent) in routine administrative/control tasks.

k. Specifications and Materials Research.

Well-founded knowledge of specification writing principles and procedures is essential to the preparation of sound, enforceable specifications. Unless these skills are properly developed, expert knowledge of materials, contracts, and construction procedures can not be communicated successfully. A cardinal principle of specification writing requires the landscape architect to understand the relationship between drawings and specifications, and to be able to communicate in a logical, orderly sequence, the requirements of the construction process. Many factors must be considered in the selection and evaluation of materials or products to be used in a project, e.g., appropriateness, durability, aesthetic quality, initial cost, and maintenance. To avoid future problems, it is extremely important that the landscape architect recognize the function of each item to be specified. The landscape architect must carefully assess new materials as well as new or unusual applications of familiar items, regardless of manufacturer or growers representations, to be certain no hidden deficiencies exist that might create problems for the MACOM, installation, user, or cost-sharing partner. Possible career program individual activities include, but are not limited to:

(1) Reviewing construction specifications organization, purpose, and format, and assist in writing specifications. Reviewing and analyzing bidding forms, insurance and bonding requirements, liens, supplementary and special conditions.

(2) Researching and evaluating data for products and plant material to be specified, including information regarding availability, cost, and manufacturer's or grower's reliability. Attending or participating in sales presentations in connection with this research.

(3) Researching industry standards and guidelines for specific classes of products (e.g., paving blocks or plant materials) as they affect various manufacturers' items or nurserymen growing stock being considered for acceptability on a project. Researching construction techniques and systems, and understanding workmanship

standards such as planting practices, poured-in-place concrete, masonry and wood construction.

(4) Use USACE Guide Specifications (CEGS) in a project specification, including procedures needed to adapt individual sections for the specifics of the project.

I. Document Checking and Coordination.

Close coordination between drawings and specifications is required when preparing construction documents. The work of each discipline must be reviewed regularly and checked against the landscape architectural drawings as well as the drawings of the other disciplines to eliminate conflicts. Before final release of documents for construction purposes, the drawings must be checked and cross-checked for accuracy and constructability. Possible career program individual activities include, but are not limited to:

(1) Assisting in cross-checking products, plant materials, and methods called for in the specifications for consistency with corresponding terminology and descriptions on the working drawings.

(2) Checking drawings prepared by others for accuracy of dimensions, notes, abbreviations, and indications.

(3) Assisting in developing a schedule of lead time required for proper coordination with other disciplines.

(4) Checking drawings by other disciplines with landscape architectural drawings and the drawings between other disciplines for possible conflicts, including interference of utility lines, electrical fixtures, etc.

(5) Assisting in the final project review for compliance with applicable codes, regulations, etc.

Category C - Construction

The following training areas are recommended:

a. Bidding and Contract Negotiation. The landscape architect assists in establishing and administering bidding procedures, issuing addenda, evaluating proposed substitutions, reviewing the qualifications of bidders, analyzing

bids or negotiated proposals. and making recommendations for the selection of the landscape contractor. The construction contract and related documents are the formal instruments which bind the major parties together in the construction phase. They detail the desired product and the services to be provided during construction, as well as the consideration to be paid for the product and the services. Possible career program individual activities include, but are not limited to:

(1) Carefully reviewing the bidding/award stages of previous projects. Developing an understanding of problems encountered and how they were solved.

(2) Preparing sample bids using quantity take- offs from the project cost analysis.

(3) Assisting in the pre-qualification of bidders.

(4) Assisting in the receipt, analysis, and evaluation of bids, including any alternatives or additives.

(5) Learning what information and submittals are required prior to issuance of a notice to proceed.

(6) Assisting in evaluating equal product considerations in preparing addenda.

(7) Meeting with contractors and material suppliers to better understand problems they encounter with bid packages and construction contract documents. Understand the role of funding limitations during the bidding process.

(8) Assisting in the preparation and negotiation of construction contracts, and become familiar with the conditions of the contract for construction in order to identify the roles of the landscape architect, contractor, user, bonding company and insurer, and the contracting officer in the administration of the construction phase.

b. Construction Phase - Office. During the construction phase of a project, there are many related tasks which do not directly involve field observations, e.g., processing contractors' applications for payment, change orders, shop drawings and samples, and adjudicating disputes. The handling of these matters will usually have a

direct bearing on the smooth functioning of the work in the field. For example, prompt processing of the contractors' application for payment, including the review of any substantiating data that may be required by the contract documents, helps the contractor maintain an even flow of funds. Items such as shop drawings, samples, and test reports submitted for the landscape architect's review must be acted upon promptly to expedite the construction process. Changes in the work which may affect the time of construction or modify the cost are accomplished by change orders. Interpretations necessary for the proper execution of work must be promptly given in writing even when no change order is required. Possible career program individual activities include, but are not limited to:

(1) Assisting in processing applications for payment and preparing certificates of payment.

(2) Assisting in checking shop drawings and evaluating samples submitted by construction contractors, and maintaining records of the evaluations.

(3) Assisting in evaluating requests for changes (including value engineering proposals), interpreting the documentation, and preparing change orders.

(4) Participating in the resolution of disputes and the interpretation of conflicts relating to the contract documents.

(5) Participating in the assembly of evidence and the preparation of testimony to be used before an arbitration panel or in court.

(6) Researching the legal responsibilities of the Government, construction contractor, and contract architect-engineer (AE) firms by attending seminars and using other supplementary education sources.

(7) Participating in the preparation of record documents at project completion (contract closeout).

c. Construction Phase - Quality Assurance. In administering the construction contract, the landscape architect's function is to determine if the contractor's work generally conforms to the requirements of the contract documents. To evaluate the quality of plant

material and workmanship, the landscape architect must be thoroughly familiar with all of the provisions of the contract documents and contract. Periodic reports on the stage of the completion of scheduled activities are collected and compared to the overall project schedule at job site meetings. These meetings facilitate communication between the contract parties and produce a detailed progress record. The landscape architect must determine, through observation, the date of substantial completion and receive all data, warranties, and releases required by the contract documents prior to final inspection and final payment. Dissatisfaction can lead to arbitration or the courts. Possible career program individual activities include, but are not limited to:

(1) Visiting the job site and participating in observation of the work in place and materials stored, and prepare field progress reports of such routine inspections.

(2) Reviewing and analyzing construction time schedules. Understand the various network methods (e.g., critical path method) potentially available to the construction contractor.

(3) Developing an awareness of the contractual obligations related to the observation of construction by reviewing the construction contract documents and through professional development programs.

(4) Attending periodic job-site construction meetings and assisting in recording and documenting all actions taken and agreed to at such meetings.

(5) Participating in the substantial completion inspection and assisting in the punch list verification.

(6) Participating in the final acceptance inspection with the installation, the user, and other involved parties.

Category D - Operations

The following training areas are recommended.

a. Regulatory Functions. The landscape architect implements Federal laws protecting navigable waterways and water supply. Manages the Corps permit program to include policy development, program execution and program

review. Issues regulations for danger zones, restricted areas, operation of Corps projects, and for the use and administration, and navigation in navigable waters. Reviews proposed and new legislation to determine effect on Corps permit program. The landscape architect establishes and maintains agreements with Federal agencies on regulatory matters, and reviews field budget submission and prepares overall annual regulatory budget proposal and documentation. Possible career program individual activities include, but are not limited to:

(1) Assisting in the evaluation and interpretation of environmental quality regulations such as the protection of natural resources (preserving existing and improving ecological balances for those now abused), verification and protection/control/improvements of pollution, energy conservation, and aesthetic quality (visual assessment review process).

(2) Participating in the drafting of permits, regulations and agreements.

(3) Checking overall annual regulatory budget for accuracy, consistency and agreement with draft documents.

b. Natural Resources Management.

Landscape architects are active in the development, management, operation and maintenance of recreation and land and water resources at Civil Works projects. He/she develops and issues policy for development and management of natural resources to maintain ecological, forest and fish, and wildlife resources at Civil Works projects. Provides policy and staff supervision of recreational use of project areas, including preparation of Federal regulations governing public uses of these areas. Provides staffing guidelines for recreation and resources-related manpower at Civil Works projects. Determines availability of multi-purpose projects lands before interchange, disposal, or issuance and execution of real-estate permits, leases and licenses for use by others. Develops cost sharing requirements and guidance on Natural Resources Management O&M budgets. Serves as technical monitor for the Aquatic Plant Control Program and Natural Resources Research and Development Program at Civil Works projects. Possible career program individual activities include, but are not limited to:

(1) Participating in the development of draft policy for the management of natural resources at Civil Works projects. Preparing minutes of meetings, reports and organizing reviews of documentation.

(2) Assisting in assessing studies on the availability of multi-project lands in a specific area. Preparing analysis reports and make draft recommendations.

(3) Checking studies on recreation resources for accuracy, consistency of format and clarity.

(4) Reviewing procedures and contracts for grounds maintenance to improve existing turf, trees, shrubs, recreational equipment and site furnishing conditions.

Category E - Facilities Engineering

The following training areas are recommended.

a. Army Real Property Master Planning.

The installation master plan is a process that identifies long-term priorities and goals of the installation and translates those priorities and goals into land use, facility, and related infrastructure objectives and policies, as well as natural resource protection and efficient use of all resources. The plan is the primary mechanism to relate the installation mission to plans for facilities, programs, projects and policies required within the installation boundaries to support the military community. The plan is also a product that portrays those long-term priorities, goals, objectives, and policies. Possible career program individual activities include, but are not limited to:

(1) Assisting in the analysis of land-use and organizational relationships and their impact on the selection of sites for projects.

(2) Assisting in analyzing several sites to assess the feasibility of their use for a proposed project.

(3) Helping analyze the feasibility of using a specific site for the project.

(4) Researching site constraints/restrictions such as land use, easements, utilities, etc.

(5) Participating in public hearings and

meetings about land use issues and preparing reports for future reference.

b. Programming/DD 1391 Preparation.

Landscape architects working in the master planning function often develop DD 1391's programming documents that support the installation construction program. The construction program is based on the installation's short-range component of the Real Property Master Plan in a priority order which implements the long-term goals and objectives of the installation as reflected in the Real Property Master Plan. Possible career program individual activities include, but are not limited to:

(1) Participating in the analysis of the installation master plan and the Capital Improvement Plan to determine if the priority order of construction meets the installations requirements.

(2) Assisting in the preparation of DD 1391's programming documents of projects for design approval. Research AR 415-15 for correct procedures and format for DD 1391s.

(3) Checking DD 1391s to see that the document contains all the pertinent information necessary to meet the requirements of AR 415-15 and related publications.

c. Natural Resources Management.

Landscape architects are active in the development, improvement, maintenance and conservation of real property on Army installations. He/she implements control measures for: wind and water erosion and sedimentation; excessive and undesirable vegetation; and fire hazards and pollution. Defines and implements maintenance and improvement practices that include: care and development of turf, trees and shrubs; agricultural outgrant lease areas; soil stabilization; irrigation; land drainage; and natural resources management plans. Possible career program individual activities include, but are not limited to:

(1) Participating in the development of implementation programs that conserve, manage and maintain all land and water areas on Army installations in accordance with proven scientific methods, procedures and techniques to facilitate the installation mission and operations.

(2) Assisting in assessing studies to prevent the installation from contributing to pollution through waste disposal or erosional debris.

(3) Working with other natural resource individuals to improve the appearance of the installation and facilities through the preservation of the natural terrain and vegetation and appropriate new plantings.

Category F - Life Cycle Project Management

The following training areas are recommended:

Although landscape architecture is a creative design profession, the landscape architect is sometimes called upon in commercial enterprises to serve in a project management capacity. As ESRC professionals, they can likewise operate in a similar capacity in USACE. Landscape architects may be responsible for overseeing project development under the "cradle to grave" concept of project management. As such, they serve as an individual project manager (IPM) and are the primary point of contact within the agency and with the public on a given project. They work closely with various technical specialists during planning design and implementation phases of project development. In the initial stages of planning they serve as members of the planning team and eventually assume control of the management of the project once a project has been firmly identified. A project manager manages delivery of the project in accordance with the Project Management Plan (PMP) through construction into project operations or transfer to the partner and settlement of outstanding claims. Possible career program individual activities include, but are not limited to:

(1) Being the designated leader of the project team comprised of technical managers from the various district functional areas and other members, as appropriate. Managing the overall project including: acquisition planning, affordability and corporate commitments.

(2) Obtaining manpower, cost schedule and task description input from participating district elements and the partner and develops the PMP.

(3) Helping monitor actual obligations and

expenditures to ensure compliance with the PMP, proper distribution of obligations and expenditures among the standard code of accounts, and effective use of all project funds, Federal and non-Federal.

(4) Working with designated team members to ensure early identification of project related issues which may impact scope, quality, cost, budget, and schedule. Facilitating resolution of these issues or elevating them to the appropriate decision-making level. The project manager is responsible for resolving these problems in the most appropriate manner.

(5) Managing project schedule and cost, making and/or recommending necessary adjustments based on changes and performance. Ensuring development, in conjunction with the cost engineer and the designated technical managers, of all required cost estimates. Developing forecast schedule and estimate.

(6) Working with the district elements in preparation and negotiation of cost sharing agreements.

(7) Helping ensure that environmental commitments are incorporated into the project through succeeding phases.

(8) Participating in review conferences and approving the memoranda for record.

(9) Serving as the primary point of contact with USACE customers on project issues. Ensuring customer understanding of funding and finance requirements for project execution, regularly updating customers on progress, reviewing and monitoring the customer's compliance with commitments, participating in resolution of technical issues with the customer, and coordinating project schedule and cost change requests.

(10) Participating in prefinal and final inspections and ensuring that any deficiencies are corrected.

(11) Helping ensure timely preparation of operation and maintenance manuals, resolution of outstanding claims, completion of final audit, and transfer of projects to our partners or others for operation.

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(12) Reporting to the project review board on a monthly basis and helping ensure that the chain of command stays informed.